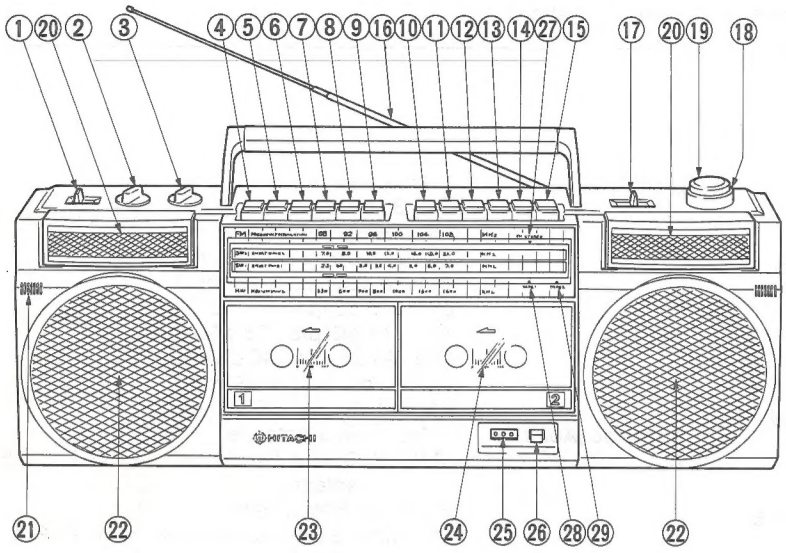
HITACHI
SERVICE MANUAL

TY	No. 452 E

TRK-W22
H, HC, E, E(BS), W, AU

TN-33ZVC-681 Chassis
TN-33ZVC-682 Chassis



CONTENTS

KEY TO ILLUSTRATIONS

① FUNCTION SELECTOR
② TONE CONTROL
③ VOLUME CONTROL

TAPE 1

④ PAUSE BUTTON
⑤ STOP/EJECT BUTTON
⑥ FAST FORWARD BUTTON
⑦ REWIND BUTTON
⑧ PLAYBACK BUTTON
⑨ CONTINUOUS PLAY BUTTON

TAPE 2

⑩ PAUSE BUTTON
⑪ STOP/EJECT BUTTON
⑫ FAST FORWARD BUTTON
⑬ REWIND BUTTON
⑭ PLAYBACK BUTTON
⑮ RECORD BUTTON

⑯ ROD ANTENNA
⑰ BAND SELECTOR
⑱ TUNING CONTROL
⑲ FINE TUNING CONTROL (W, AU only)
⑳ 2 cm TWEETER
㉑ INNER MICROPHONE (MONAURAL)
㉒ 10 cm SPEAKER
㉓ TAPE 1 CASSETTE HOLDER
㉔ TAPE 2 CASSETTE HOLDER
㉕ TAPE COUNTER
㉖ COUNTER RESET BUTTON
㉗ FM STEREO INDICATOR
㉘ TAPE 1 INDICATOR
㉙ TAPE 2 INDICATOR

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

RADIO/DOUBLE CASSETTE TAPE RECORDER

May 1985 TOYOKAWA WORKS

SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with ⚠ in the circuit diagram and printed wiring board.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS

General Section

Semiconductors
ICs : 4
Transistors : 10 [For E]
9 [For E (BS), W, (AU)]
8 [For H, HC]
Diodes : 16 [For W]
15 [Except W]
LEDs : 3

Power supply
AC : 220 V, 50 Hz [For E]
AC : 240 V, 50 Hz [For E (BS), AU]
AC : 110 – 127 V/200 – 220 V
230 – 250 V, 50/60 Hz [For W]
AC : 120 V 60 Hz [For H, HC]
DC : 9 V ("D" CELL or IEC R20 × 6 or equivalent)

Power Consumption 16 W

Power Output
9 W P.M.P. (AC operation)
6 W M.P.O. (AC operation)
2 W/CH (T.H.D. 10 % DC)

Speakers
Woofer : 10 cm, 4 ohms × 2
Tweeter : 2 cm, 300 ohms × 2

Dimensions 570(W) × 208(H) × 132(D) mm

Weight 4.3 kg (with batteries)

Radio Section

Circuit System
FM/SW/MW/LW 4-band [For E, E (BS)]
FM/SW2/SW1/MW 4-band [For W, AU]
FM/AM 2-band [For H, HC]
Superheterodyne

Tuning Range
FM : 87.5 to 108 MHz
SW : 6 to 18 MHz
MW : 530 to 1,605 kHz
LW : 150 to 285 kHz
} [For E, E (BS)]

FM : 88 to 108 MHz
SW2 : 7 to 22 MHz
SW1 : 2.3 to 7 MHz
MW : 530 to 1,605 kHz
} [For W, AU]

FM : 88 to 108 MHz
AM : 530 to 1,605 kHz
} [For H, HC]

Intermediate Frequency
FM : 10.7 MHz
AM : 465 kHz [For E, E (BS)]
AM : 455 kHz [For W, AU, H, HC]

Sensitivity
FM : 12 dB (pra.), 3 dB (max.)
SW : 30 dB (pra.), 20 dB (max.)
MW : 48 dB (pra.), 40 dB (max.)
LW : 55 dB (pra.), 48 dB (max.)
} [For E, E (BS)]

FM : 12 dB (pra.), 3 dB (max.)
SW2 : 30 dB (pra.), 27 dB (max.)
SW1 : 45 dB (pra.), 38 dB (max.)
MW : 48 dB (pra.), 40 dB (max.)
} [For W, AU]

FM : 12 dB (pra.), 3 dB (max.)
AM : 48 dB (pra.), 40 dB (max.)
} [For H, HC]

Antennas (Aerials)
FM/SW : Rod antenna
MW/LW : Built-in ferrite core antenna
} [For E, E (BS)]

FM/SW2 : Rod antenna
SW1/MW : Built-in ferrite core antenna
} [For W, AU]

FM : Rod antenna
AM : Built-in ferrite core antenna
} [For H, HC]

Tape Recorder Section

Tape Cassette tape (C-30, 60, 90)

Track System 4 track 2 channel stereo

Recording System AC bias, 55 kHz

Erasing System DC erase

Frequency Response Normal : 60 to 10,000 Hz

Signal to Noise Ratio 40 dB

Wow and Flutter 0.25 % (WRMS)

Cross Talk
Between tracks : 65 dB
Between channels : 40 dB

Input Sensitivity and Impedance
Mic : 0.6 mV, 1.2 kohms
Line-in : 500 mV, 330 kohms

Output Load Impedance Headphone : 8 ohms-100 ohms

Distortion 3 %

Erasing Ratio 60 dB

Fast Forwarding or Rewinding time 110 sec (using C-60)

Motor DC motor

Heads Permalloy

DISASSEMBLY

1. Cassette lid Removal (Fig. 1)

Insert a screw driver (–) in the direction of arrow to remove the claw.

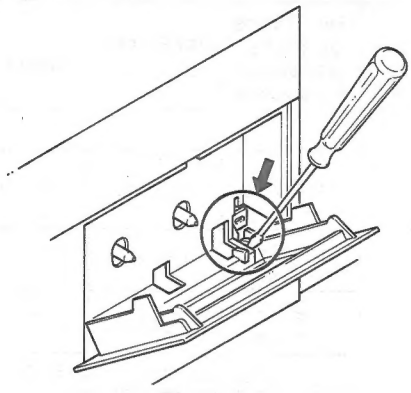


Fig. 1

2. Rear Case Removal (Fig. 2, 3)

(1) Remove the battery lid.
(2) The rear case can be removed by removing 8 screws Ⓐ . Remove pin connectors P101 of the Tuner P.W.B. and PL601 of the Power P.W.B. at that time.

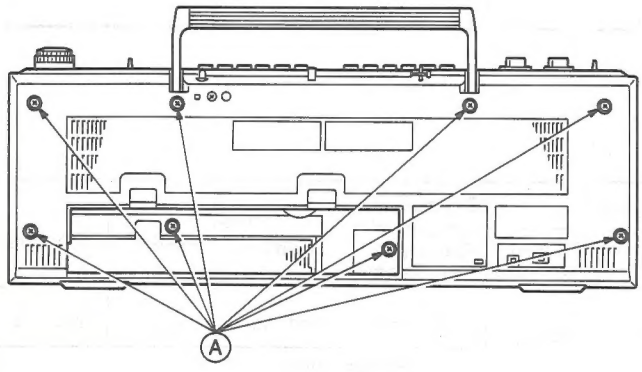


Fig. 2

3. Tuner P.W.B. Removal (Fig. 3)

Remove the fixing screw Ⓑ and pull the Tuner P.W.B. toward you out of 2 guide pins.

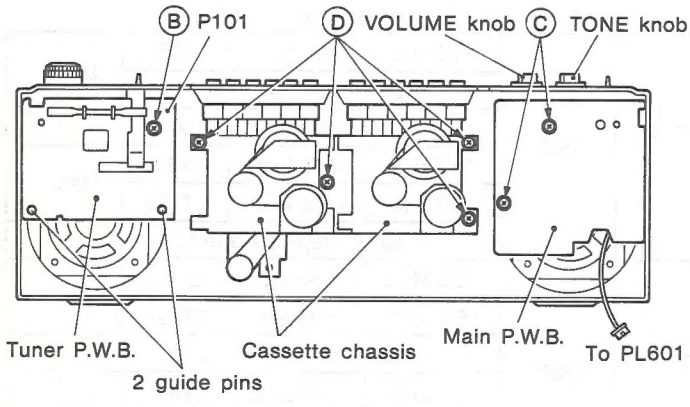


Fig. 3

4. Main P.W.B. Removal (Fig. 3)

(1) Pull out the TONE, VOLUME knobs.
(2) Remove 2 fixing screws Ⓒ and the Main P.W.B. is removed when the terminals (LINE IN, EXT MIC, PHONES) and switches (INN MIC, SP, FM MODE, RIF) are pulled out of the front case.

5. Cassette chassis (TAPE 1 and TAPE 2) Removal (Fig. 3)

The cassette chassis (TAPE 1 and TAPE 2) are removed while they are assembled together by removing 4 screws Ⓓ .

6. Speaker Removal (Fig. 4)

Remove 4 fixing screws Ⓔ after the Tuner P.W.B. and Main P.W.B. are removed.

7. Power P.W.B. Removal (Fig. 5)

Remove 2 screws Ⓕ and pull out the Power P.W.B. toward the front.

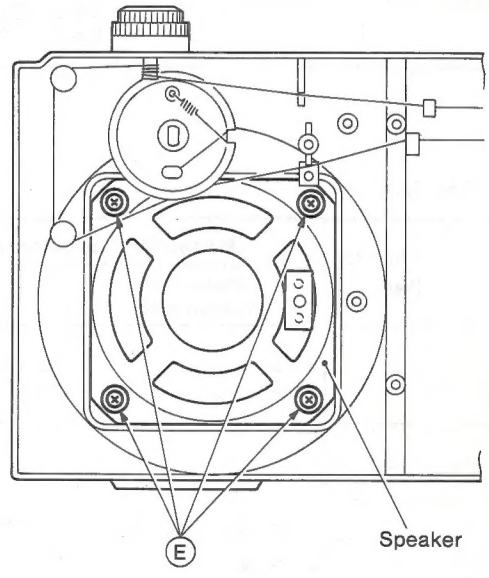


Fig. 4

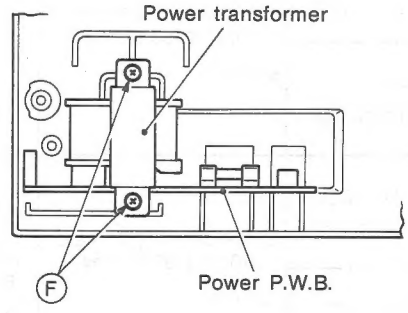


Fig. 5

ADJUSTMENT

1. Radio Section

FM Section

* ( ) For W. Germany

Step		Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading
			Measuring Instrument	Input Terminal	Output Terminal				
1	(1)	FM IF	Turn T202 fully counterclockwise.						
	(2)	S-Curve	• Genescope (10.7 MHz)	TP102	TP201	10.7 MHz	Highest	T101	Note 1
								T202	Note 2
2	(1)	FM OSC (Covering)	• FM signal generator (400 Hz, 30 % Dev.) • Oscilloscope • VTVM	TP101 (thru FM dummy antenna) (Note 3)	TP201	87 MHz *(87.5 MHz)	Lowest	L102	Max.
	(2)					109 MHz *(108 MHz)	Highest	CT102	
	(3)					Repeat steps (1) and (2)			
3	(1)	FM ANT. (Tracking)				90 MHz	90 MHz	L101	Max.
	(2)					106 MHz	106 MHz	CT101	
	(3)					Repeat steps (1) and (2)			
4	(1)	FM MPX. (Multiplex)	• Frequency counter	Connect a 10μF 25 V electrolytic capacitor between the No.12 pin of IC301 and the ground	TP301	—	—	RT301	19 kHz ± 20 Hz (Note 4)

AM Section

Step			Adjustment Item	Measuring Instrument and Conncection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading
				Measuring Instrument	Input Terminal	Output Terminal				
For E/E (BS)	1	(1)	AM IF	• Genescope (465 kHz)	Ferrite-core antenna (Note 5)	TP201	465 kHz	Highest	T201 T203	Note 6
		(2)					Repeat step (1)			
	2	(1)	LW OSC. (Covering)	• AM signal generator (400 Hz, 30 % Dev.) • VTVM	Ferrite-core antenna (Note 5)	TP201	145 kHz	Lowest	L156	Max.
		(2)					290 kHz	Highest	CT156	
		(3)					Repeat steps (1) and (2)			
	3	(1)	LW ANT. (Tracking)				160 kHz	160 kHz	L153	Max.
		(2)					270 kHz	270 kHz	CT153	
		(3)					Repeat steps (1) and (2)			
	4	(1)	MW OSC. (Covering)	• AM signal generator (400 Hz, 30 % Dev.) • VTVM	Ferrite-core antenna (Note 5)	TP201	515 kHz	Lowest	L155	Max.
		(2)					1650 kHz	Highest	CT155	
		(3)					Repeat steps (1) and (2)			
	5	(1)	MW ANT. (Tracking)				600 kHz	600 kHz	L152	Max.
		(2)					1400 kHz	1400 kHz	CT152	
		(3)					Repeat steps (1) and (2)			
	6	(1)	SW OSC. (Covering)	• AM signal generator (400 Hz, 30 % Dev.) • VTVM	TP101 (thru SW. dummy antenna) (Note 7)	TP201	5.8 MHz	Lowest	L154	Max.
		(2)					18.5 MHz	Highest	CT154	
		(3)					Repeat steps (1) and (2)			
	7	(1)	SW ANT. (Tracking)				6.5 MHz	6.5 MHz	L151	Max.
		(2)					16 MHz	16 MHz	CT151	
		(3)					Repeat steps (1) and (2)			

	Step		Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading
				Measuring Instrument	Input Terminal	Output Terminal				
For W/AU	8	(1)	AM IF	• Genescope (455 kHz)	Ferrite-core antenna (Note 5)	TP201	455 kHz	Highest	T201 T203	Note 6
		(2)					Repeat step (1)			
	9	(1)	MW OSC. (Covering)	• AM signal generator (400 Hz, 30 % Dev.) • VTVM	Ferrite-core antenna (Note 5)	TP201	515 kHz	Lowest	L156	Max.
		(2)					1650 kHz	Highest	CT156	
		(3)					Repeat steps (1) and (2)			
	10	(1)	MW ANT. (Tracking)				600 kHz	600 kHz	L153	Max.
		(2)					1400 kHz	1400 kHz	CT153	
		(3)					Repeat steps (1) and (2)			
	11	(1)	SW 1 OSC. (Covering)	• AM signal generator (400 Hz, 30 % Dev.) • VTVM	TP101 (thru SW. dummy antenna) (Note 7)	TP201	2.2 MHz	Lowest	L155	Max.
		(2)					7.3 MHz	Highest	CT155	
		(3)					Repeat steps (1) and (2)			
	12	(1)	SW 1 ANT. (Tracking)				2.7 MHz	2.7 MHz	L152	Max.
		(2)					6.3 MHz	6.3 MHz	CT152	
		(3)					Repeat steps (1) and (2)			
	13	(1)	SW 2 OSC. (Covering)	• AM signal generator (400 Hz, 30 % Dev.) • VTVM	TP101 (thru SW. dummy antenna) (Note 7)	TP201	6.7 MHz	Lowest	L154	Max.
		(2)					23 MHz	Highest	CT154	
		(3)					Repeat steps (1) and (2)			
	14	(1)	SW 2 ANT. (Tracking)				8 MHz	8 MHz	L151	Max.
		(2)					20 MHz	20 MHz	CT151	
		(3)					Repeat steps (1) and (2)			
For H/HC	15	(1)	AM IF	• Genescope (455 kHz)	Ferrite-core antenna (Note 5)	TP201	455 kHz	Highest	T201 T203	Note 6
		(2)					Repeat step (1)			
	16	(1)	MW OSC. (Covering)	• AM signal generator (400 Hz, 30 % Dev.) • VTVM	Ferrite-core antenna (Note 5)	TP201	515 kHz	Lowest	L155	Max.
		(2)					1650 kHz	Highest	CT152	
		(3)					Repeat steps (1) and (2)			
	17	(1)	MW ANT. (Tracking)				600 kHz	600 kHz	L152	Max.
		(2)					1400 kHz	1400 kHz	CT151	
		(3)					Repeat steps (1) and (2)			

Note :

1. Feed in a weak signal to TP102 from the genescope. Adjust T101 for maximum gain and the waveform indicated in Fig. 6. If the center of the waveform cannot be lined up on the marker, adjust the right/-left balance.

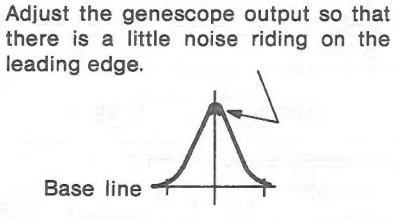


Fig. 6

2. Use the T202 core to form the S-curve shown in Fig. 7. Adjust the symmetry of A and B about point C for linearity.

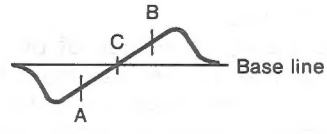
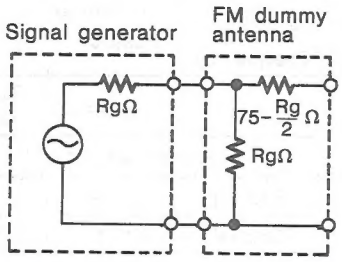


Fig. 7

3. FM dummy antenna is shown in Fig. 8.



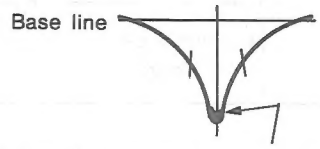
Rg : SG's output impedance

Fig. 8

4. Connect the frequency counter to TP301 and connect a 100 kΩ resistor series with the frequency counter.

5. Connect the output of AM signal generator to the loop antenna, and put it near to the ferrite antenna.

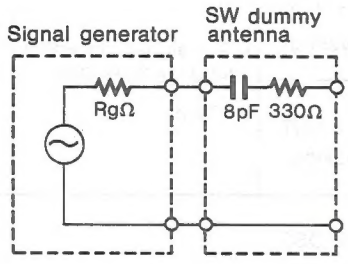
6. Feed in a weak signal from the genescope. Adjust T201, T203 for maximum gain and the waveform of Fig. 9.



Adjust the genescope output so that there is a little noise riding on the leading edge.

Fig. 9

7. SW. dummy antenna is shown in Fig. 10



Rg : SG's output impedance

Fig. 10

2. Tape Recorder Section

Perform the following adjustments in the sequence stated after cleaning the head, pressure roller, and capstan with a head cleaning stick moistened in alcohol.

Step	Adjustment Item	Measuring Instrument and Connection			Check Tape	Mode	Adjusted Position	Adjusted Value	Remarks
		Measuring Instrument	Input Terminal	Output Terminal					
1	Tape speed	• Frequency counter	—	Speaker terminal	Tape speed adjustment tape (3 kHz)	Playback	Semivariable resistor in the motor P.W.B. (Fig. 11)	3 kHz ± 20 Hz	Note 1
2	Head azimuth	• VTVM	—	Speaker terminal	Head azimuth adjustment tape (10 kHz)	Playback	Azimuth adjusting screw	Output max.	Note 2

Note :

1. Adjust within 30 sec. after heat-running for more than 20 minutes.
2. When the maximum values of both channels are different, adjust to the maximum value of the L channel. In this case, the difference between the maximum values of both channels should be within 2 dB.

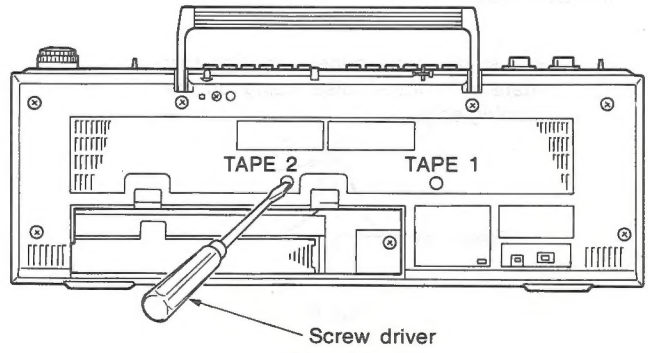
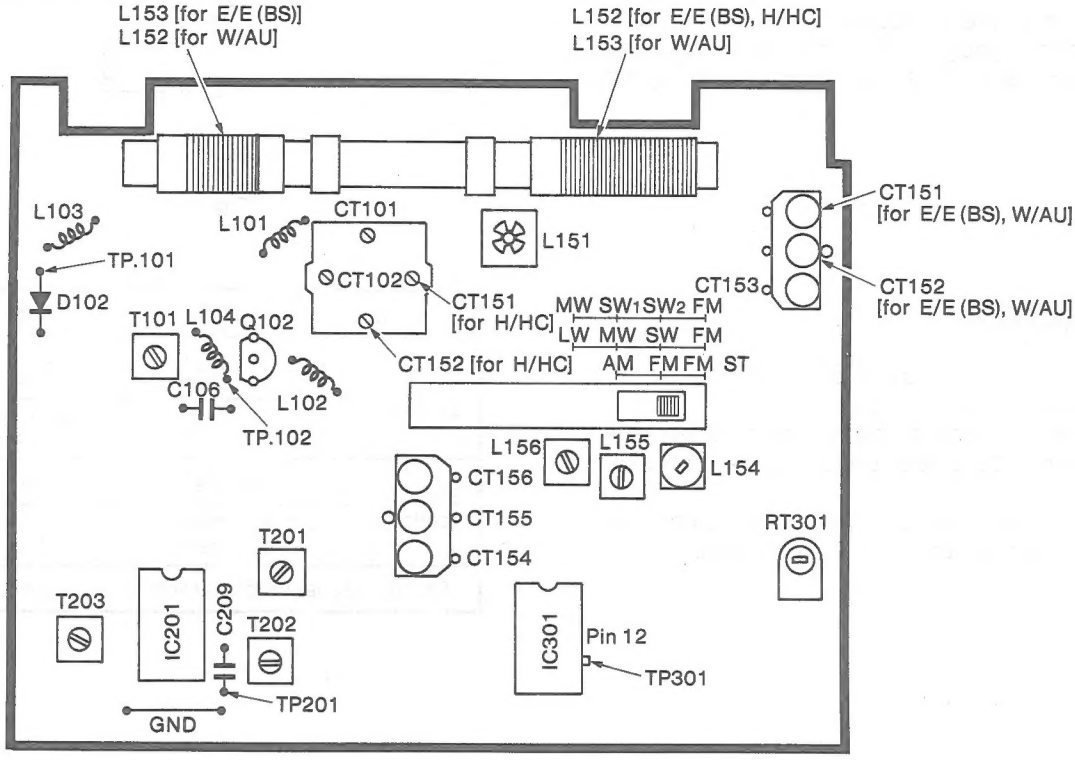


Fig. 11

ADJUSTMENT PARTS LOCATION

• TUNER SECTION



INSPECTION OF MECHANISM

Item	Checking item		Reference value	Remarks
1	Pressure of pressure roller		300 – 500 g	Note
2	Take-up torque		35 – 65 g.cm	
3	Fast forward/Rewind torque		60 – 140 g.cm	TAPE 2
			60 – 140 g.cm	TAPE 1
4	Auto-Stop sensor operation force		40 – 75 g	
5	Brake torque		15 g.cm or more	Measured in stop mode
6	Back tension torque	Take-up	2 – 6.5 g.cm	TAPE 2
			1 – 6 g.cm	TAPE 1
		Supply	2 – 6 g.cm	
7	Flywheel thrust gap		0.05 – 0.5 mm	
8	Button operation force	Play button	1.7 kg or less	
		FF button	1.0 kg or less	
		Rewind button	1.0 kg or less	
		Eject button	1.0 kg or less	
		Record button	1.0 kg or less	
		Pause button	1.5 kg or less	

Note :
Set this unit in the playback mode and press the pressure roller in the direction of the arrow using a fan type tension gauge, and measure the pressure when the pressure roller is released from the capstan.

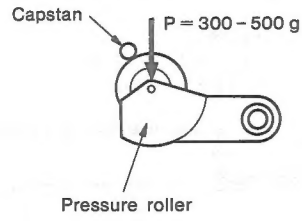


Fig. 12

LUBRICATION

Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point.
Lubricate the respective parts listed once every 1000 hours or once a year under normal conditions of use.
Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

Lubrication point		Oil or Grase
Rotary section	Metal and metal	Pan motor oil (10 W-40)
	Mold and metal	Sonic slider oil (# 1600)
Sliding section	Metal and metal	Hitasol (MO-138)
	Mold and mold Mold and metal	White grease (FL-LUBE-A)
Spring resonance prevention		Floil (GB-TS-1)

DIAL CORD STRINGING

Stringing method

- String the dial cord to each rollers according to the order from ① to ⑧ after turned the pulley to the end of clockwise direction.

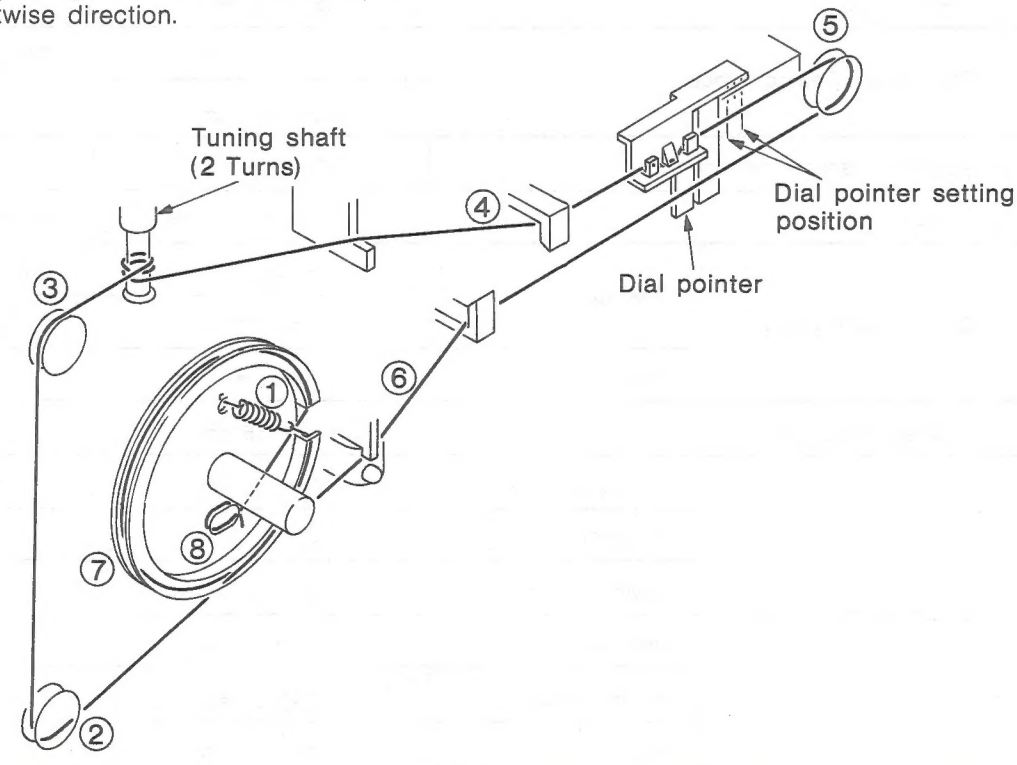


Fig. 13

CIRCUIT DIAGRAM

CAUTION
Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10mmø.

※ : Axial lead cylindrical ceramic capacitor

MAIN P.W.B.

: except H,HC

PLAY / REC

VOLTAGE: PLAY / REC

IC401	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PLAY	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V	0V	0.5V	0V	0V	0V	4.4V	0V	0V	0.5V
REC	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V	0V	0.5V	0V	0V	0V	4.4V	0V	0V	0.5V

IC401 BA343 PRE AMP.

Q402L HIT9014N Ⓒ PRE AMP.

Q402R HIT9014N Ⓒ PRE AMP.

Q401L HIT9014N Ⓒ PRE AMP.

Q401R HIT9014N Ⓒ PRE AMP.

Q403 2SC1684R REC BIAS OSC

Q404 HIT8050C SWITCHING

Q405 HIT5609C VOLT. STAB.

IC501 TA7282AP POWER AMP.

POWER P.W.B.

except W

for H,HC: 1.25A F601 T1.25A

for E,BS,AU: F601 T1.25A

for E : 220V 50Hz
for AU,BS : 240V 50Hz
for H,HC : 120V 60Hz

POWER P.W.B.

for W

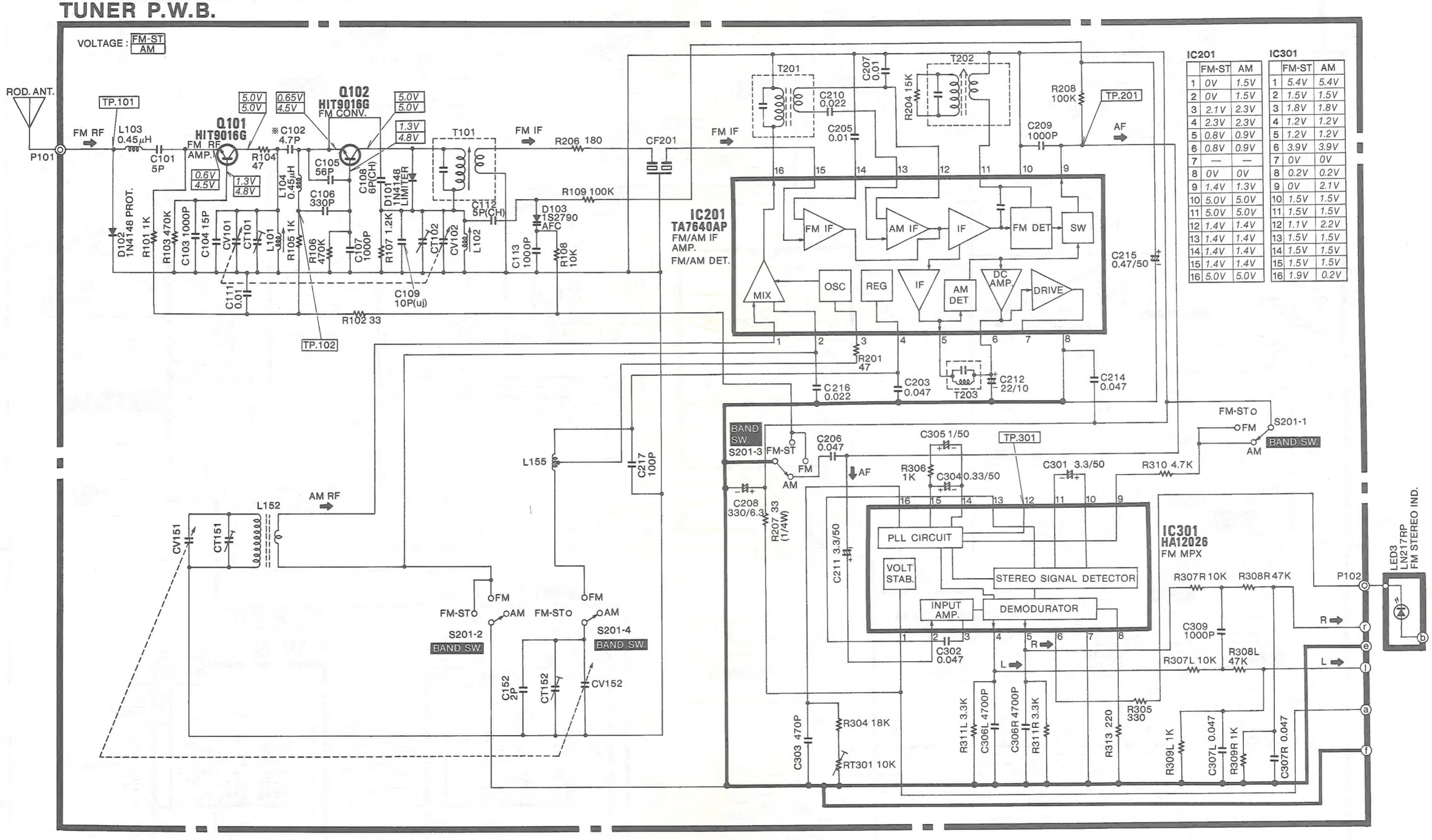
50/60Hz
a : 230～250V
b : 200～220V
c : 110～127V

CIRCUIT DIAGRAM
[For H, HC]

CAUTION
Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10mmø.

※ : Axial lead cylindrical ceramic capacitor

TUNER P.W.B.

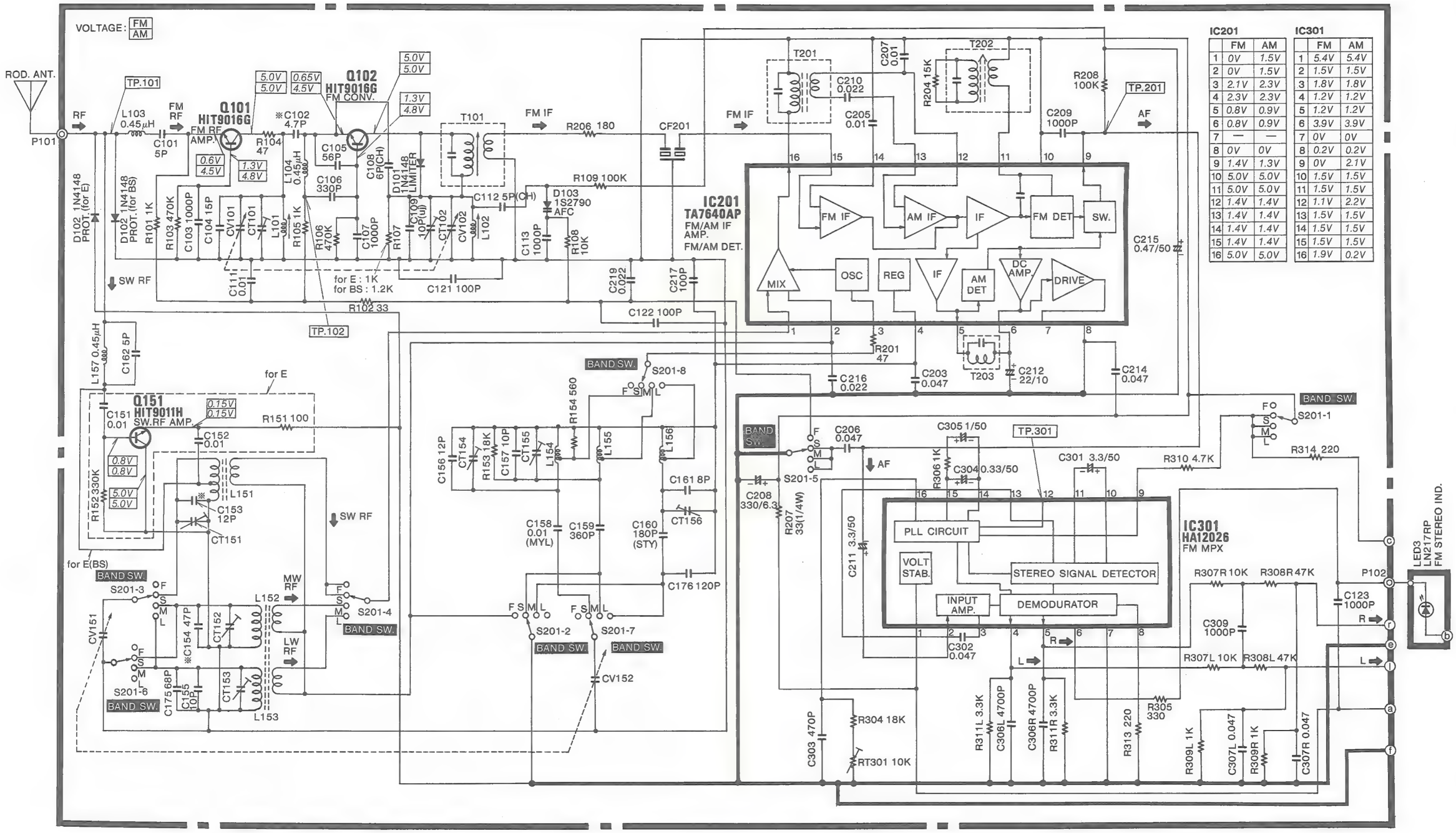


CIRCUIT DIAGRAM
[For E, E (BS)]

CAUTION
Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10mmø.

※ : Axial lead cylindrical ceramic capacitor

TUNER P.W.B.



IC201	FM	AM
1	0V	1.5V
2	0V	1.5V
3	2.1V	2.3V
4	2.3V	2.3V
5	0.8V	0.9V
6	0.8V	0.9V
7	—	—
8	0V	0V
9	1.4V	1.3V
10	5.0V	5.0V
11	5.0V	5.0V
12	1.4V	1.4V
13	1.4V	1.4V
14	1.4V	1.4V
15	1.4V	1.4V
16	5.0V	5.0V

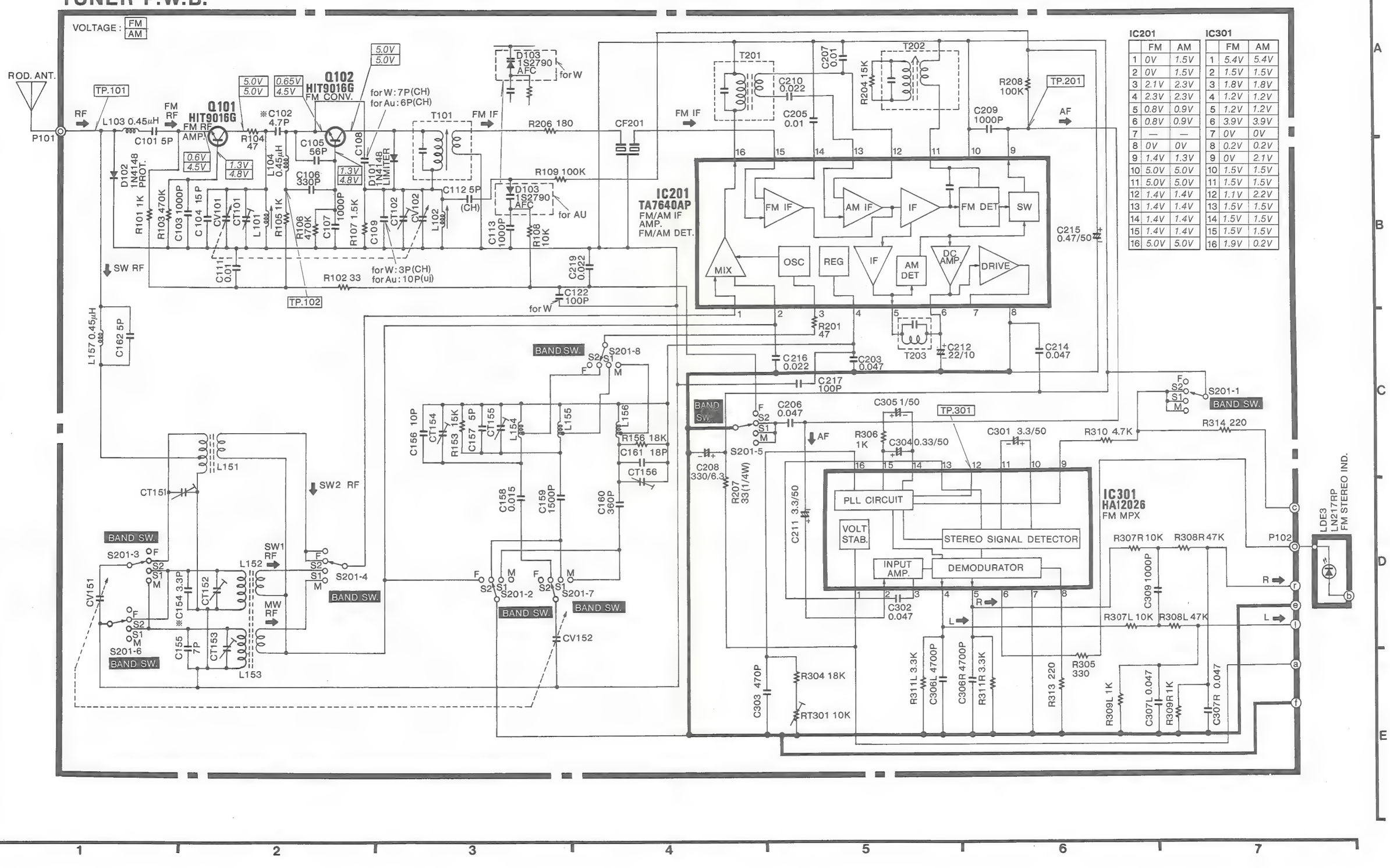
IC301	FM	AM
1	5.4V	5.4V
2	1.5V	1.5V
3	1.8V	1.8V
4	1.2V	1.2V
5	1.2V	1.2V
6	3.9V	3.9V
7	0V	0V
8	0.2V	0.2V
9	0V	2.1V
10	1.5V	1.5V
11	1.5V	1.5V
12	1.1V	2.2V
13	1.5V	1.5V
14	1.5V	1.5V
15	1.5V	1.5V
16	1.9V	0.2V

CIRCUIT DIAGRAM
[For W, AU]

CAUTION
Use the electrolytic capacitors with explosion-proof valve when the diameter of them is more than 10mmø.

※ : Axial lead cylindrical ceramic capacitor

TUNER P.W.B.



IC201

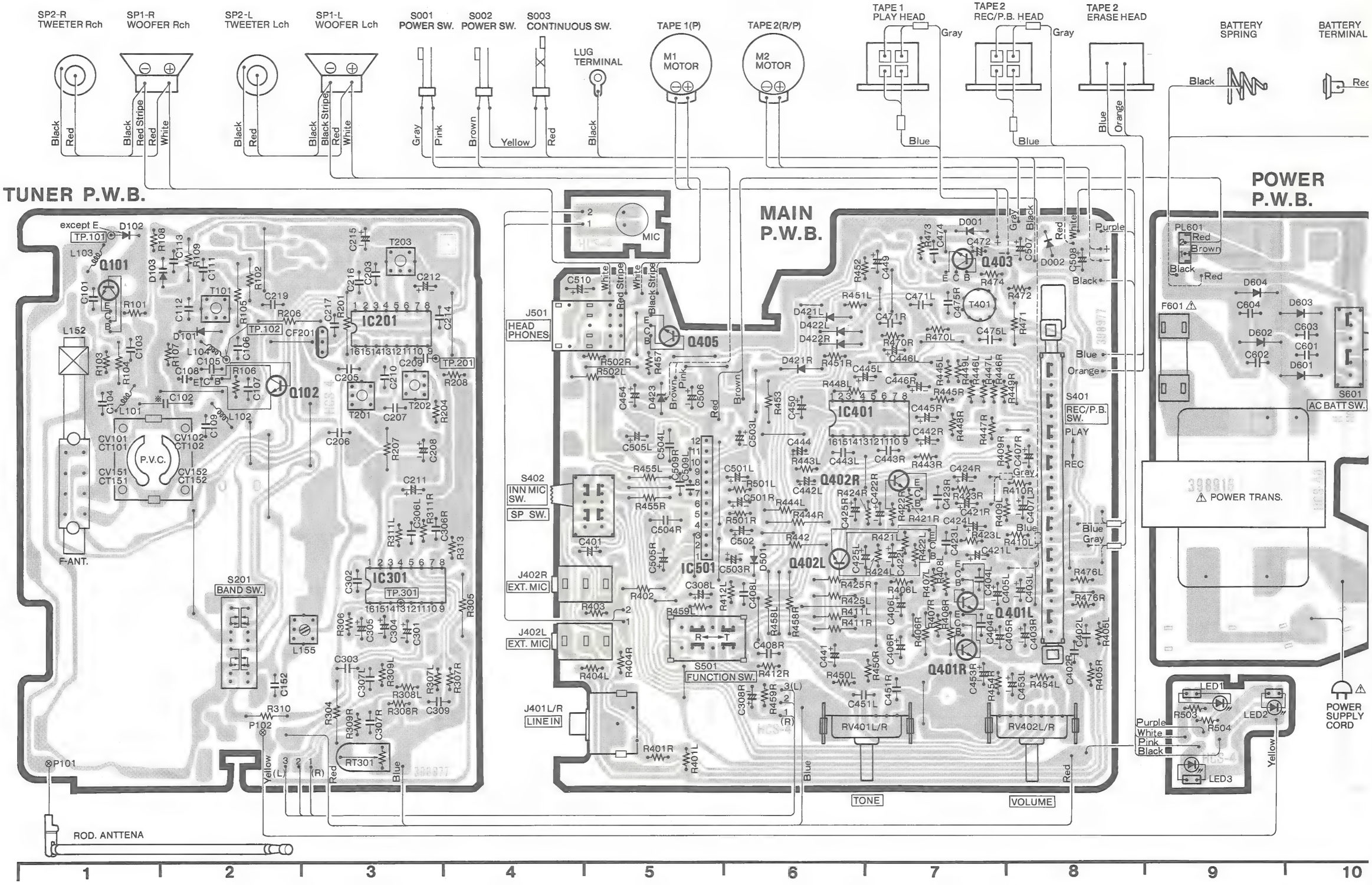
	FM	AM
1	0V	1.5V
2	0V	1.5V
3	2.1V	2.3V
4	2.3V	2.3V
5	0.8V	0.9V
6	0.8V	0.9V
7	—	—
8	0V	0V
9	1.4V	1.3V
10	5.0V	5.0V
11	5.0V	5.0V
12	1.4V	1.4V
13	1.4V	1.4V
14	1.4V	1.4V
15	1.4V	1.4V
16	5.0V	5.0V

IC301

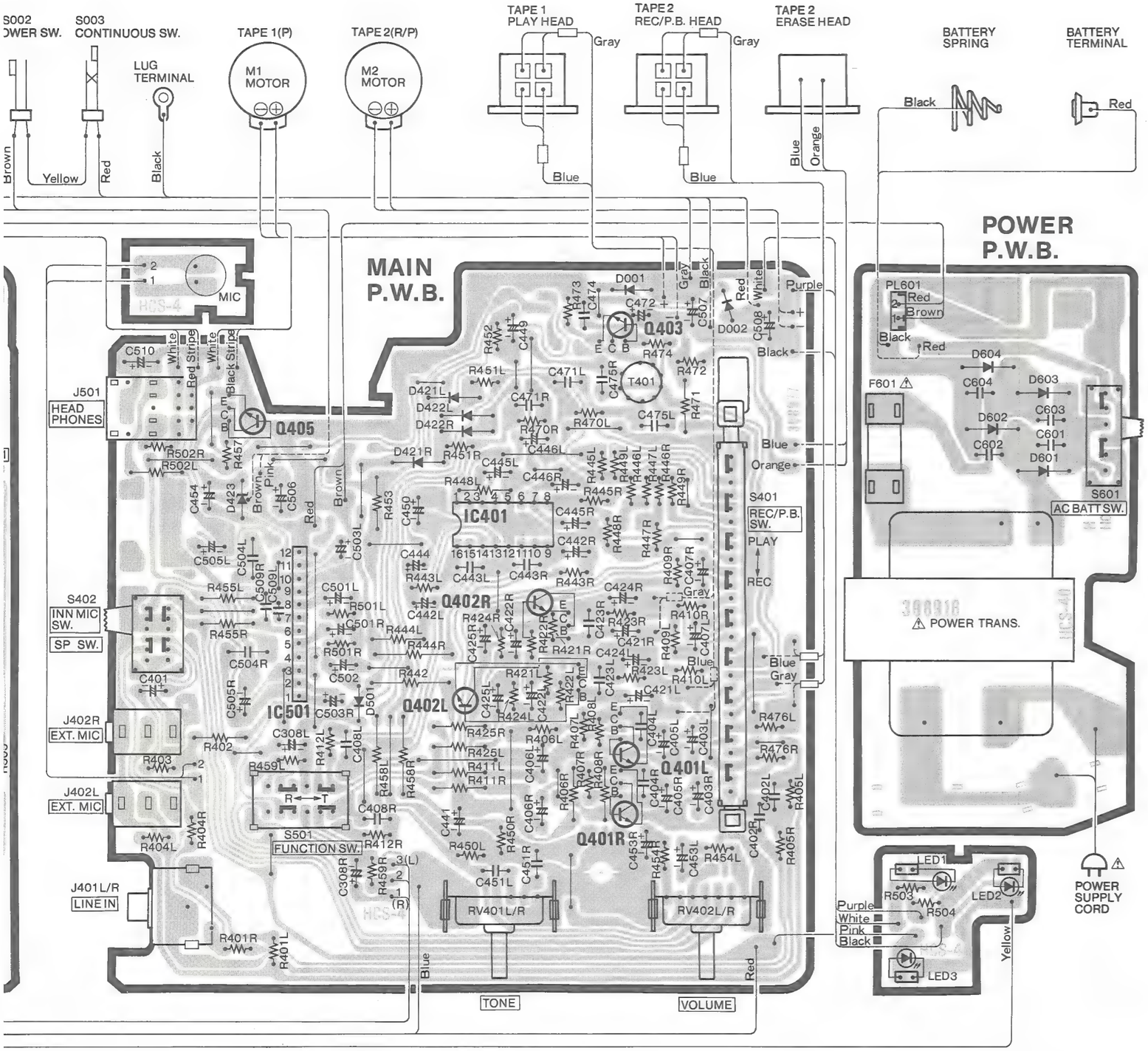
	FM	AM
1	5.4V	5.4V
2	1.5V	1.5V
3	1.8V	1.8V
4	1.2V	1.2V
5	1.2V	1.2V
6	3.9V	3.9V
7	0V	0V
8	0.2V	0.2V
9	0V	2.1V
10	1.5V	1.5V
11	1.5V	1.5V
12	1.1V	2.2V
13	1.5V	1.5V
14	1.5V	1.5V
15	1.5V	1.5V
16	1.9V	0.2V

PRINTED WIRING BOARD
[For H, HC]

※ : Axial lead cylindrical ceramic capacitor



※ : Axial lead cylindrical ceramic capacitor



IC201															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FM-ST	0V	0V	2.1V	2.3V	0.8V	0.8V	—	0V	1.4V	5.0V	5.0V	1.4V	1.4V	1.4V	1.4V	5.0V
AM	1.5V	1.5V	2.3V	2.3V	0.9V	0.9V	—	0V	1.3V	5.0V	5.0V	1.4V	1.4V	1.4V	1.4V	5.0V

IC301																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FM-ST	5.4V	1.5V	1.8V	1.2V	1.2V	3.9V	0V	0.2V	0V	1.5V	1.5V	1.1V	1.5V	1.5V	1.5V	1.9V
AM	5.4V	1.5V	1.8V	1.2V	1.2V	3.9V	0V	0.2V	2.1V	1.5V	1.5V	2.2V	1.5V	1.5V	1.5V	0.2V

IC401																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PLAY	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V	0V	0.5V	0V	0V	0V	4.4V	0V	0V	0.5V
REC	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V	0V	0.5V	0V	0V	0V	4.4V	0V	0V	0.5V

IC501												
1	2	3	4	5	6	7	8	9	10	11	12
7.2V	4.3V	8.3V	8.2V	0.6V	0V	0V	0.6V	0V	4.2V	7.2V	9.0V

Q101		
	FM-ST	AM
E	0.6V	4.5V
C	5.0V	5.0V
B	1.3V	4.8V

Q102		
	FM-ST	AM
E	0.65V	4.5V
C	5.0V	5.0V
B	1.3V	4.8V

Q405		
	PLAY	REC
E	5.4V	5.4V
C	9.0V	9.0V
B	6.0V	6.0V

Q403		
	PLAY	REC
E	0V	0.1V
C	0V	3.8V
B	0V	0.75V

Q401LR, Q402LR		
	PLAY	REC
E	0V	0V
C	1.5V	1.5V
B	0.65V	0.65V

PRINTED WIRING BOARD

[Except H, HC]

※ : Axial lead cylindrical ceramic capacitor

SP2-R TWEETER Rch (Black, Red)
SP1-R WOOFER Rch (Black, Red Stripe, Red, White)
SP2-L TWEETER Lch (Black, Red)
SP1-L WOOFER Lch (Black, Black Stripe, Red, White)
S001 POWER SW. (Gray, Pink)
S002 POWER SW. (Brown)
S003 CONTINUOUS SW. (Yellow, Red)
LUG TERMINAL (Black)
TAPE 1(P) M1 MOTOR
TAPE 2 M2 MOTOR
TAPE 1 PLAY HEAD (Gray, Blue)
TAPE 2 REC/P.B. HEAD (Gray, Blue)
TAPE 2 ERASE HEAD (Blue, Orange)

Q404	PLAY	REC
E	0V	0V
C	0V	0V
B	0V	0V

Q403	PLAY	REC
E	0V	0.1V
C	0V	3.8V
B	0V	0.75V

Q151	FM	AM
E	0.15V	0.15V
C	5.0V	5.0V
B	0.8V	0.8V

Q101	FM	AM
E	0.6V	4.5V
C	5.0V	5.0V
B	1.3V	4.8V

IC501	1	2	3	4	5	6	7	8	9
	7.2V	4.3V	8.3V	8.2V	0.6V	0V	0V	0.6V	0V

IC401	1	2	3	4	5	6	7
PLAY	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V
REC	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V

TUNER P.W.B.

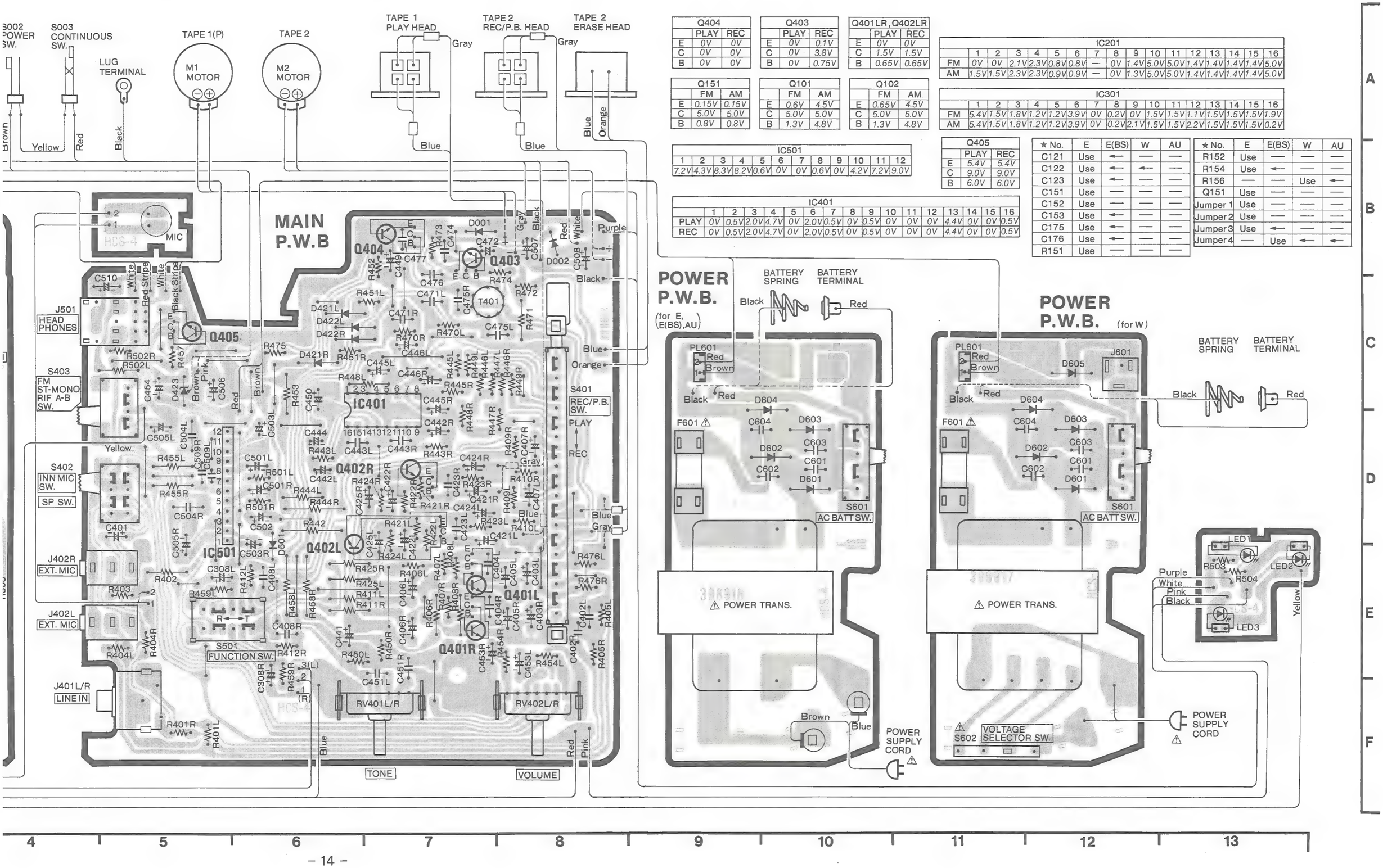
MAIN P.W.B

POWER P.W.B.

(for E, E(BS), AU)

for W,AU for E,E(BS)
SN(L152) LW(L153) MW(L153) MW(L152)
F-ANT.
for E
ROD. ANTTENA
P.V.C.
BAND SW.
MIC
J501 HEAD PHONES
S403 FM ST-MONO RIF A-B SW.
S402 INN MIC SW. / SP SW.
J402R EXT. MIC
J402L EXT. MIC
J401L/R LINE IN
S501 FUNCTION SW.
S401 REC/P.B. SW.
RV401L/R TONE
RV402L/R VOLUME
PL601
F601
POWER TRANS.
BATTERY SPRING
BATTERY TERMINAL
AC BAT

※ : Axial lead cylindrical ceramic capacitor



Q404	PLAY	REC
E	0V	0V
C	0V	0V
B	0V	0V

Q403	PLAY	REC
E	0V	0.1V
C	0V	3.8V
B	0V	0.75V

Q401LR, Q402LR	PLAY	REC
E	0V	0V
C	1.5V	1.5V
B	0.65V	0.65V

Q151	FM	AM
E	0.15V	0.15V
C	5.0V	5.0V
B	0.8V	0.8V

Q101	FM	AM
E	0.6V	4.5V
C	5.0V	5.0V
B	1.3V	4.8V

Q102	FM	AM
E	0.65V	4.5V
C	5.0V	5.0V
B	1.3V	4.8V

IC201	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FM	0V	0V	2.1V	2.3V	0.8V	0.8V	—	0V	1.4V	5.0V	5.0V	1.4V	1.4V	1.4V	1.4V	5.0V
AM	1.5V	1.5V	2.3V	2.3V	0.9V	0.9V	—	0V	1.3V	5.0V	5.0V	1.4V	1.4V	1.4V	1.4V	5.0V

IC301	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FM	5.4V	1.5V	1.8V	1.2V	1.2V	3.9V	0V	0.2V	0V	1.5V	1.5V	1.1V	1.5V	1.5V	1.5V	1.9V
AM	5.4V	1.5V	1.8V	1.2V	1.2V	3.9V	0V	0.2V	2.1V	1.5V	1.5V	2.2V	1.5V	1.5V	1.5V	0.2V

IC501	1	2	3	4	5	6	7	8	9	10	11	12
	7.2V	4.3V	8.3V	8.2V	0.6V	0V	0V	0.6V	0V	4.2V	7.2V	9.0V

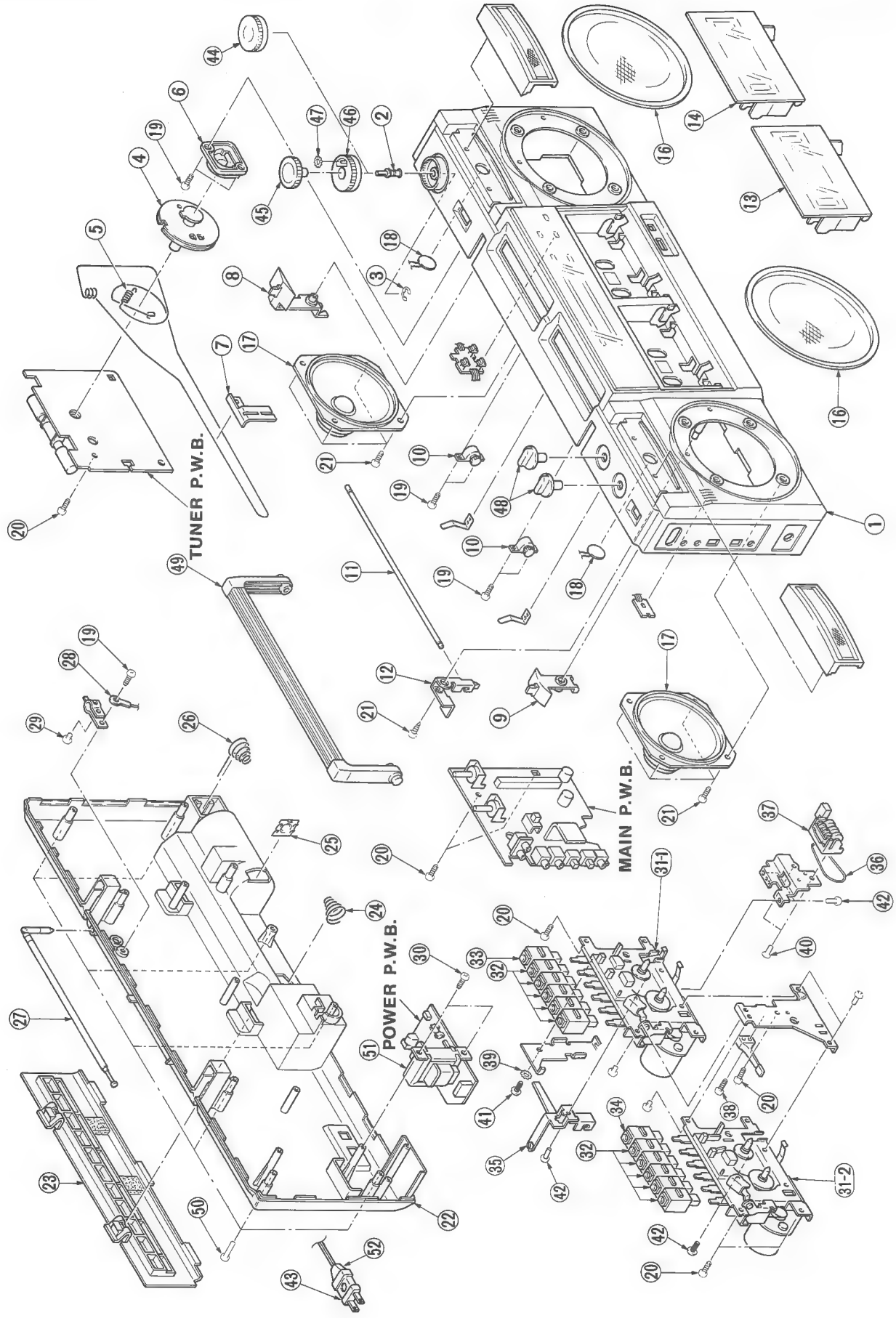
Q405	PLAY	REC
E	5.4V	5.4V
C	9.0V	9.0V
B	6.0V	6.0V

IC401	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PLAY	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V	0V	0.5V	0V	0V	0V	4.4V	0V	0V	0.5V
REC	0V	0.5V	2.0V	4.7V	0V	2.0V	0.5V	0V	0.5V	0V	0V	0V	4.4V	0V	0V	0.5V

★ No.	E	E(BS)	W	AU
C121	Use	←	—	—
C122	Use	←	←	—
C123	Use	←	—	—
C151	Use	—	—	—
C152	Use	—	—	—
C153	Use	←	—	—
C175	Use	←	—	—
C176	Use	←	—	—
R151	Use	—	—	—

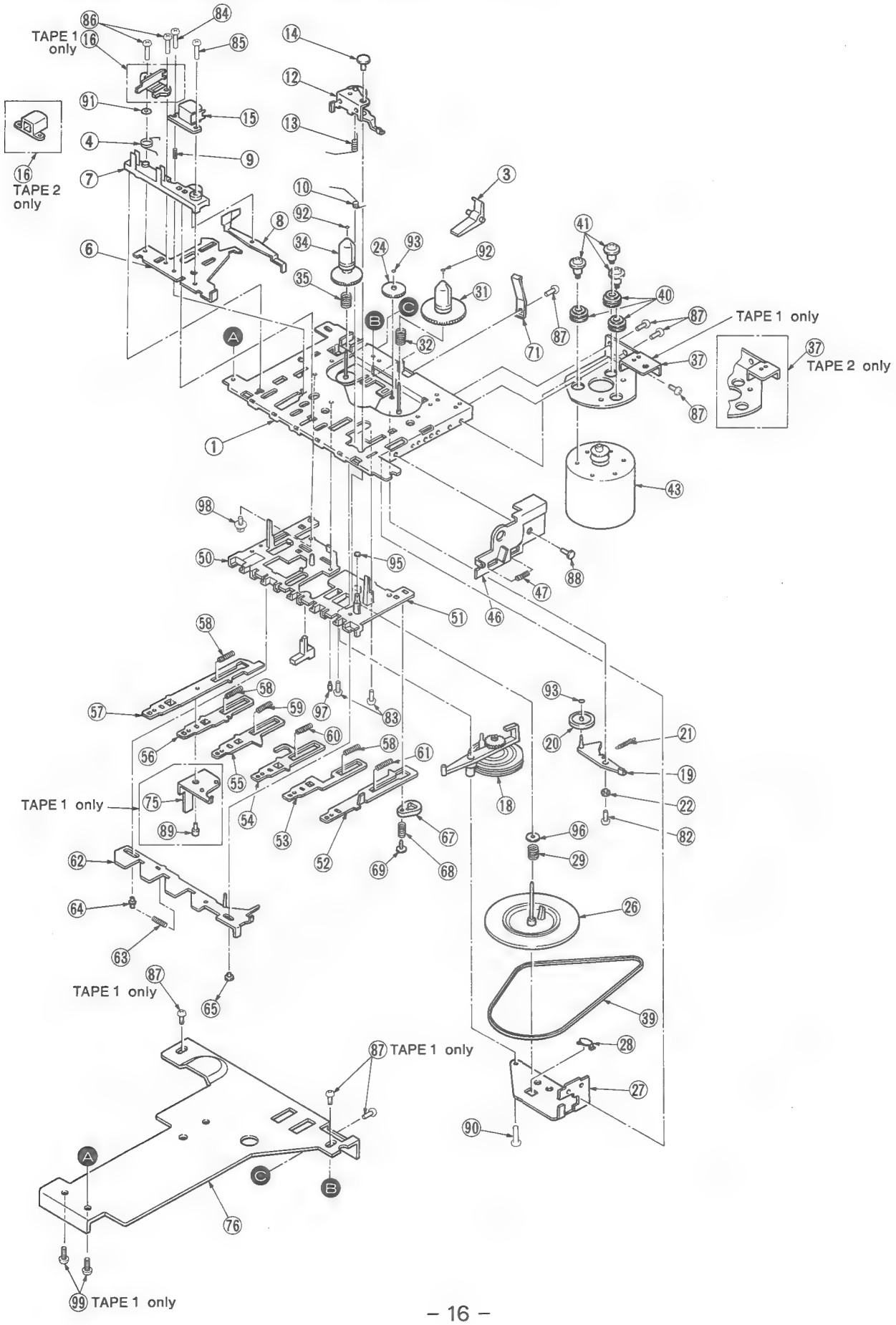
★ No.	E	E(BS)	W	AU
R152	Use	—	—	—
R154	Use	←	—	—
R156	—	—	Use	←
Q151	Use	—	—	—
Jumper 1	Use	—	—	—
Jumper 2	Use	—	—	—
Jumper 3	Use	←	—	—
Jumper 4	—	Use	←	←

EXPLODED VIEW (Cabinet)



EXPLODED VIEW

TN-33ZVC-681/682 [TAPE 2 (R/P)/TAPE 1 (PLAY ONLY)]



REPLACEMENT PARTS LIST

SYMBOL No.	PART No.	DESCRIPTION
		for FRONT CASE ASSEMBLY
1	4027421	Front case ass'y [for H, HC]
	4027422	Front case ass'y [for E, E (BS)]
	4027423	Front case ass'y [for W]
	4027424	Front case ass'y [for AU]
2	4591983	Tuning shaft [for H, HC, E, E (BS)]
	4591984	Tuning shaft [for W]
3	4418013	E ring
4	3348602	Pulley
5	3340321	Spring
6	3973081	Pulley holder
7	3973031	Pointer
8	4442031	Function lever
9	3973061	Knob
10	3950381	Damper ass'y (×2)
11	4591991	REC shaft
12	4441841	REC lever
13	3973093	Cassette lid
14	3973094	Cassette lid
16	3973511	Speaker grille (×2)
17	2402911	10 Speaker (×2)
18	2403354	Piezo tweeter (×2)
19	8691410	3φ × 10 Bind head screw (×6)
20	8699410	3φ × 10 Bind head screw (×7)
21	4578972	3φ × 10 BT flange head screw (×9)

SYMBOL No.	PART No.	DESCRIPTION
		for REAR CASE ASSEMBLY
22	4027451	Rear case ass'y [for H]
	4027452	Rear case ass'y [for HC]
	4027453	Rear case ass'y [for E]
	4027454	Rear case ass'y [for E (BS)]
	4027455	Rear case ass'y [for W]
	4027456	Rear case ass'y [for W (UN)]
	4027457	Rear case ass'y [for AU]
23	3973523	Battery lid ass'y
24	3369849	Spring
25	4436666	Terminal
26	3369781	BAT spring
27	2758012	Rod antenna
28	5895282	Rod antenna wire
29	4592528	3φ × 8 flange head screw
30	4578976	3φ × 20 BT flange head screw (×2)
		for CHASSIS ASSEMBLY
31-1	2588501	TN-33 ZVC (TAPE 2)
31-2	2588502	TN-33 ZVC (TAPE 1)
32	3303163	Cassette button (×10)
33	3303164	Cassette button
34	3303165	Cassette button
35	4442082	REC arm ass'y
36	4689531	Counter belt
37	2788864	Enplas counter
	2789721	Leaf switch (×2)
	2789711	Leaf switch

SYMBOL No.	PART No.	DESCRIPTION
38	4582514	2φ × 8 DT screw
39	8815113	2.6φ Lock washer
40	8721406	3φ × 6 Flat head screw
41	0741304	2.6φ × 4 Bind screw
42	4578282	2.6φ × 5 DT screw (×4)
		for FINAL ASSEMBLY
43	2667922	Siemens plug [for W]
44	3303182	Knob [for H, HC, E, E (BS)]
45	3303092	Fine knob [for W, AU]
46	3973051	Tuning knob [for W, AU]
47	3348611	OG gear [for W, AU]
48	3303171	Select knob (×2)
49	4441859	Handle ass'y
50	4577817	3φ × 30 Bind head screw (×8)
⚠ 51	2248925	Power trans. [for H, HC]
⚠	2248922	Power trans. [for E]
⚠	2248923	Power trans. [for E (BS)]
⚠	2248921	Power trans. [for W]
⚠	2248924	Power trans. [for AU]
⚠ 52	2706241	Power supply cord [for H, HC]
⚠	2719449	Power supply cord [for E]
⚠	2717902	Power supply cord [for E, (BS)]
⚠	2706264	Power supply cord [for W]
⚠	2706251	Power supply cord [for AU]

TN-33 ZVC-681/682 (TAPE 2/TAPE 1)

ITEM No.	PART No.	DESCRIPTION
1	4815001	Chassis ass'y
3	3959031	Record prevention lever (TAPE 2)
4	4815002	REC spring
6	4815003	Head panel
7	3959051	Head base
8	4815004	Sensing plate ass'y
9	3365081	Spring for head
10	4815005	Head panel spring
12	4815006	Pinch roller ass'y
13	3365101	Spring
14	3959061	Pressure roller arm stopper
15	2555671	Record playback head
16	2555661	E.H. Head (TAPE 2)
16	4813851	Dummy head (TAPE 1)
18	4815007	RF clutch arm ass'y
19	4815008	Take up roller arm ass'y
20	4815009	Take up roller ass'y
21	3365121	Spring (Take up roller arm)
22	4586351	Coller (Take up roller arm)
24	3959111	F.F. gear
26	4815011	Flywheel ass'y
27	4815012	Flywheel holder
28	3959151	Flywheel plate
29	3365131	Spring (Flywheel thrust)
31	4815013	Take up reel ass'y
32	4815014	Back tension spring (TAPE 1)
32	3365151	Back tension spring (TAPE 2)
34	3959381	Supply reel ass'y

ITEM No.	PART No.	DESCRIPTION
35	4815014	Back tension spring
37	4815015	Motor bracket (TAPE 2)
37	4451601	Motor bracket (TAPE 1)
39	4690601	Belt
40	4690591	Motor rubber (×3)
41	4586421	Special screw (×3)
43	4816992	Motor ass'y
46	4815016	Eject lever ass'y
47	4815017	Eject lever spring
50	4815021	Push button base (R)
51	4815022	Push button base (L)
52	4815023	Pause button lever ass'y
53	4815024	Stop button lever
54	4815025	F.F. button lever
55	4815026	RWD button lever
56	4815027	Play button lever
57	4815028	REC button lever
58	3365171	Button lever spring (×3)
59	3365181	Spring (Button lever)
60	3365191	Button lever spring
61	3365211	Spring (Button lever)
62	4815031	Push button actuator ass'y
63	3365201	Spring
64	3959221	Actuator shaft
65	3959231	Actuator shaft
67	3959271	Pause lever
68	4815032	Pause lever spring
69	4815033	Pause lever stopper

ITEM No.	PART No.	DESCRIPTION
71	4815034	Pack spring
75	4441801	Continuous play lever (TAPE 1)
76	4441831	Mecha. holder (TAPE 1)
82	8691104	2φ × 4 BT screw
83	8691105	2φ × 5 BT screw (×2)
84	8691108	2φ × 8 Bind head screw
85	8691108	2φ × 8 Bind head screw
86	8691108	2φ × 8 Bind head screw (×2)
87	4578281	2.6φ × 4 Screw TAPE 2 (×4), TAPE 1 (×7)
88	8711305	2.6φ × 5 Tapping screw
89	4578281	2.6φ × 4 Screw
90	8691110	2φ × 10 Bind tapping screw
91	4701927	Washer
92	4701925	Washer (×2)
93	4701926	Washer (×2)
95	4701921	Nylon washer
96	4701924	Nylon washer
97	8691106	2φ × 6 DT screw
98	4586481	Coller screw
99	4567419	3φ × 5 DT screw (×2) (TAPE 1)

REPLACEMENT PARTS LIST

CD : Ceramic discal　　CC : Cylindrical ceramic　　EL : Electrolytic　　MF : Mylar, film
PP : Polypro-pylene　　STY : Styrol　　CF : Carbon film

H : U.S.A.　　HC : Canada　　E : Europe (except U.K.)　　E (BS) : U.K.　　AU : Australia
W : Asia & Latin American countries, etc.

SYMBOL No.	PART No.	DESCRIPTION
CAPACITORS		
C101	0208635	CD 5pF ±0.25% 50V
C102	0230008	CC 4.7pF ±10% 50V
C103	0209161	CD 1000pF $^{+80}_{-20}$% 50V
C104	0208664	CD 15pF ±5% 50V
C105	0208678	CD 56pF ±5% 50V
C106	0209721	CD 330pF ±10% 50V
C107	0209161	CD 1000pF $^{+80}_{-20}$% 50V
C108	0246426	CD 6pF ±0.5% 50V [except W]
C108	0246427	CD 7pF ±0.5% 50V [for W]
		50V
C109	0248480	CD 10pF ±5% 50V [except W]
C109	0246413	CD 3pF ±0.25% 50V [for W]
C111	0244171	CD 0.01μF $^{+80}_{-20}$% 50V
C112	0246415	CD 5pF ±0.25% 50V
C113	0209161	CD 1000pF $^{+80}_{-20}$% 50V
C121	0208684	CD 100pF ±5% 50V [for E, E (BS)]
C122	0208684	CD 100pF ±5% 50V [for E, E (BS)]
C123	0209161	CD 1000pF $^{+80}_{-20}$% 50V [for E, E (BS)]
C151	0244171	CD 0.01μF $^{+80}_{-20}$% 50V [for E]
C152	0244171	CD 0.01μF $^{+80}_{-20}$% 50V [for E, E (BS)]
C152	0208632	CD 2pF ±0.25% 50V [for H, HC]
C153	0230014	CD 12pF ±5% 50V [for E, E (BS)]
C154	0230008	CD 4.7pF ±10% 50V [for E, E (BS)]
C154	0230006	CD 3.3pF ±10% 50V [for W, AU]
C155	0208650	CD 10pF ±0.5% 50V [for E, E (BS)]
C155	0208647	CD 7pF ±0.5% 50V [for W, AU]
C156	0208662	CD 12pF ±5% 50V [for E, E (BS)]
C156	0208650	CD 10pF ±0.5% 50V [for W, AU]
C157	0208650	CD 10pF ±0.5% 50V [for E, E (BS)]
C157	0208635	CD 5pF ±0.25% 50V [for W, AU]
C158	0275011	MF 0.01μF ±10% 50V [for E, E (BS)]
C158	0275012	MF 0.015μF ±10% 50V [for W, AU]
C159	0268321	PP 360pF ±5% 100V [for E, E (BS)]
C159	0268442	PP 1500pF ±5% 100V [for W, AU]
C160	0221317	STY 180pF ±5% 50V [for E, E (BS)]
C160	0268321	PP 360pF ±5% 100V [for W, AU]
C161	0208648	CD 8pF ±0.5% 50V [for E, E (BS)]
C161	0208666	CD 18pF ±5% 50V [for W, AU]

SYMBOL No.	PART No.	DESCRIPTION
C162	0208635	CD 5pF ±0.25% 50V [except H, HC]
C175	0208680	CD 68pF ±5% 50V [for E, E (BS)]
C176	0208686	CD 120pF ±5% 50V [for E, E (BS)]
C203	0209175	CD 0.047μF $^{+80}_{-20}$% 50V
C205	0244171	CD 0.01μF $^{+80}_{-20}$% 50V
C206	0249765	CD 0.047μF ±20% 50V
C207	0244171	CD 0.01μF $^{+80}_{-20}$% 50V
C208	0252233	EL 330μF 6.3V
C209	0209161	CD 1000pF $^{+80}_{-20}$% 50V
C210	0244173	CD 0.022μF $^{+80}_{-20}$% 50V
C211	0252813	EL 3.3μF 50V
C212	0252322	EL 22μF 10V
C214	0209175	CD 0.047μF $^{+80}_{-20}$% 50V
C215	0252805	EL 0.47μF 50V
C216	0244173	CD 0.022μF $^{+80}_{-20}$% 50V
C217	0208684	CD 100pF ±5% 50V
C219	0244173	CD 0.022μF $^{+80}_{-20}$% 50V
C301	0252813	EL 3.3μF 50V
C302	0209175	CD 0.047μF $^{+80}_{-20}$% 50V
C303	0268444	PP 470pF ±5% 100V
C304	0252803	EL 0.33μF 50V
C305	0252811	EL 1μF 50V
C306LR	0209735	CD 4700pF ±10% 50V
C307LR	0209765	CD 0.047μF ±20% 50V
C308LR	0252805	EL 0.47μF 50V
C309	0209161	CD 1000pF $^{+80}_{-20}$% 50V
C401	0252805	EL 0.47μF 50V
C402LR	0244171	CD 0.01μF $^{+80}_{-20}$% 50V
C403LR	0252802	EL 0.22μF 50V
C404LR	0209163	CD 2200pF $^{+80}_{-20}$% 50V
C405LR	0252803	EL 0.33μF 50V
C406LR	0252803	EL 0.33μF 50V
C407LR	0252803	EL 0.33μF 50V
C408L	0249765	CD 0.047μF ±20% 50V
C408R	0209765	CD 0.047μF ±20% 50V
C421LR	0252802	EL 0.22μF 50V
C422LR	0252803	EL 0.33μF 50V
C423LR	0209163	CD 2200pF $^{+80}_{-20}$% 50V
C424LR	0252803	EL 0.33μF 50V
C425LR	0252803	EL 0.33μF 50V
C441	0252232	EL 220μF 6.3V
C442LR	0252521	EL 10μF 16V
C443LR	0209161	CD 1000pF $^{+80}_{-20}$% 50V
C444	0252333	EL 33μF 10V
C445LR	0252325	EL 47μF 10V
C446LR	0252323	EL 33μF 10V
C449	0252331	EL 100μF 10V
C450	0252232	EL 220μF 6.3V
C451LR	0209764	CD 0.033μF ±20% 50V
C453LR	0252804	EL 0.15μF 50V
C454	0252335	EL 470μF 10V

SYMBOL No.	PART No.	DESCRIPTION
C471LR	0209734	CD 3300pF ±10% 50V
C472	0252331	EL 100μF 10V
C474	0209161	CD 1000pF $^{+80}_{-20}$% 50V
C475LR	0274013	MF 2200pF ±10% 50V
C476	0275013	MF 0.022μF ±10% 50V [except H, HC]
C477	0244171	CD 0.01μF $^{+80}_{-20}$% 50V [except H. HC]
C501LR	0252325	EL 47μF 10V
C502	0252531	EL 100μF 16V
C503LR	0252325	EL 47μF 10V
C504LR	0276012	MF 0.15μF ±10% 50V
C505LR	0252235	EL 470μF 6.3V
C506	0252541	EL 1000μF 16V
C507	0252532	EL 220μF 16V
C508	0252532	EL 220μF 16V
C509LR	0244161	CD 1000pF $^{+80}_{-20}$% 50V
C510	0256676	EL 47μF 10V
C601 ~ C604	0244171	CD 0.01μF $^{+80}_{-20}$% 50V
RESISTORS		
R101	0113615	CF 1kΩ ±5% SRD1/6P
R102	0113579	CF 33Ω ±5% SRD1/6P
R103	0113679	CF 470kΩ ±5% SRD1/6P
R104	0113583	CF 47Ω ±5% SRD1/6P
R105	0113615	CF 1kΩ ±5% SRD1/6P
R106	0113679	CF 470kΩ ±5% SRD1/6P
R107	0113615	CF 1kΩ ±5% SRD1/6P [for E]
R107	0113617	CF 1.2kΩ ±5% SRD1/6P [for H, HC, E (BS)]
R107	0113619	CF 1.5kΩ ±5% SRD1/6P [for W, AU]
R108	0113639	CF 10kΩ ±5% SRD1/6P
R109	0113663	CF 100kΩ ±5% SRD1/6P
R151	0113591	CF 100Ω ±5% SRD1/6P [for E]
R152	0113675	CF 330kΩ ±5% SRD1/6P [for E]
R153	0113645	CF 18kΩ ±5% SRD1/6P [for E, E (BS)]
R153	0113643	CF 15kΩ ±5% SRD1/6P [for W, AU]
R154	0113609	CF 560Ω ±5% SRD1/6P [for E, E (BS)]
R156	0113645	CF 18kΩ ±5% SRD1/6P [for W, AU]
R201	0113583	CF 47Ω ±5% SRD1/6P
R204	0113643	CF 15kΩ ±5% SRD1/6P
R206	0113597	CF 180Ω ±5% SRD1/6P
R207	0129543	CF 33Ω ±5% SRD1/4P
R208	0113663	CF 100kΩ ±5% SRD1/6P
R304	0113645	CF 18kΩ ±5% SRD1/6P
R305	0113603	CF 330Ω ±5% SRD1/6P
R306	0113615	CF 1kΩ ±5% SRD1/6P
R307LR	0113639	CF 10kΩ ±5% SRD1/6P
R308LR	0113655	CF 47kΩ ±5% SRD1/6P

SYMBOL No.	PART No.	DESCRIPTION
R309LR	0113615	CF 1kΩ ±5% SRD1/6P
R310	0113631	CF 4.7kΩ ±5% SRD1/6P
R311LR	0113627	CF 3.3kΩ ±5% SRD1/6P
R313	0113599	CF 220Ω ±5% SRD1/6P
R314	0113599	CF 220Ω ±5% SRD1/6P [except H, HC]
R401LR	0113675	CF 330kΩ ±5% SRD1/6P
R402	0113631	CF 4.7kΩ ±5% SRD1/6P
R403	0113615	CF 1kΩ ±5% SRD1/6P
R404LR	0113613	CF 820Ω ±5% SRD1/6P
R405LR	0113607	CF 470Ω ±5% SRD1/6P
R406LR	0113633	CF 5.6kΩ ±5% SRD1/6P
R407LR	0113679	CF 470kΩ ±5% SRD1/6P
R408LR	0113581	CF 39Ω ±5% SRD1/6P
R409LR	0113605	CF 390Ω ±5% SRD1/6P
R410LR	0113611	CF 680Ω ±5% SRD1/6P
R411LR	0113637	CF 8.2kΩ ±5% SRD1/6P
R412LR	0113637	CF 8.2kΩ ±5% SRD1/6P
R421LR	0113679	CF 470kΩ ±5% SRD1/6P
R422LR	0113633	CF 5.6kΩ ±5% SRD1/6P
R423LR	0113581	CF 39Ω ±5% SRD1/6P
R424LR	0113605	CF 390Ω ±5% SRD1/6P
R425LR	0113637	CF 8.2kΩ ±5% SRD1/6P
R442	0113603	CF 330Ω ±5% SRD1/6P
R443LR	0113623	CF 2.2kΩ ±5% SRD1/6P
R444LR	0113631	CF 4.7kΩ ±5% SRD1/6P
R445LR	0113667	CF 150kΩ ±5% SRD1/6P
R446LR	0113659	CF 68kΩ ±5% SRD1/6P
R447LR	0113659	CF 68kΩ ±5% SRD1/6P
R448LR	0113589	CF 82Ω ±5% SRD1/6P
R449LR	0113665	CF 120kΩ ±5% SRD1/6P
R450LR	0113639	CF 10kΩ ±5% SRD1/6P
R451LR	0113591	CF 100Ω ±5% SRD1/6P
R452	0113663	CF 100kΩ ±5% SRD1/6P
R453	0129561	CF 100Ω ±5% SRD1/4P
R454LR	0113625	CF 2.7kΩ ±5% SRD1/6P
R455LR	0113615	CF 1kΩ ±5% SRD1/6P
R457	0113615	CF 1kΩ ±5% SRD1/6P
R458LR	0113655	CF 47kΩ ±5% SRD1/6P
R459LR	0113623	CF 2.2kΩ ±5% SRD1/6P
R470LR	0113639	CF 10kΩ ±5% SRD1/6P
R471	0129551	CF 68Ω ±5% SRD1/4P
R472	0113595	CF 270Ω ±5% SRD1/6P
R473	0113563	CF 6.8Ω ±5% SRD1/6P
R474	0113655	CF 47kΩ ±5% SRD1/6P
R475	0113615	CF 1kΩ ±5% SRD1/6P [except H, HC]
R476LR	0113663	CF 100kΩ ±5% SRD1/6P
R501LR	0113595	CF 150Ω ±5% SRD1/6P
R502LR	0113587	CF 68Ω ±5% SRD1/6P
R503	0170354	CF 1.5kΩ ±5% SRD1/6P
R504	0170354	CF 1.5kΩ ±5% SRD1/6P

ICS & TRANSISTORS

IC201	2389511	TA7640AP
IC301	2389501	HA12026
IC401	2369501	BA343
IC501	2300021	TA7282AP
Q101	2319071	HIT9016G
Q102	2319071	HIT9016G
Q151	2319081	HIT9011H [for E]
Q401LR	2319091	HIT9014N (C)
Q402LR	2319091	HIT9014N (C)
Q403	2319101	2SC1684R
Q404	2319052	HIT8050C [except H, HC]
Q405	2319062	HIT5609C

DIODES

D001	2398081	1N4148
D002	2398081	1N4148
D101	2398082	1N4148
D102	2398082	1N4148
D103	2338031	1S2790
D421LR	2398082	1N4148
D422LR	2398082	1N4148
D423	2338003	HZ6C
D501	2398081	1N4148
D601	2398062	1N4001
≀	≀	≀
D604	2398062	1N4001
D605	2398062	1N4001 [for W]

COILS & TRANSFORMERS

L101	2137683	FM RF coil
L102	2137682	FM OSC coil [except W]
L102	2137681	FM OSC coil [for W]
L103	2137684	Choke coil (0.45μH)
L104	2137684	Choke coil (0.45μH)
L151	2137661	SW ANT coil [for E (BS)]
L151	2137662	SW ANT coil [for E]
L151	2137663	SW ANT coil [for W, AU]
L152	2758002	Ferrite antenna [for H, HC]
L152	2757992	Ferrite antenna [for E, E (BS)]
L152	2757981	Ferrite antenna [for W, AU]
L153	2757992	Ferrite antenna [for E, E (BS)]
L153	2757981	Ferrite antenna [for W, AU]
L154	2137671	SW OSC coil [for E, E (BS)]
L154	2137672	SW OSC coil [for W, AU]
L155	2137631	MW OSC coil [for E, E (BS)]
L155	2137634	MW OSC coil [for H, HC]
L155	2137633	SW OSC coil [for W, AU]
L156	2137642	LW OSC coil [for E, E (BS)]
L156	2137631	MW OSC coil [for W, AU]
L157	2137684	Choke coil [except H, HC] (0.45μH)
T101	2154962	FM IF trans.
T201	2154952	AM IF trans.
T202	2154964	FM IF trans.
T203	2154951	AM IF trans.
T401	2137651	REC OSC trans.

VARIABLE RESISTORS

RV401LR	0166931	10K-(A) TONE
RV402LR	0166943	10K-(3B) VOLUME

MISCELLANEOUS

CF201	2135321	Ceramic filter 10.7
CV101	0282193	Variable capacitor [for H, HC]
CV101	0282182	Variable capacitor [except H, HC]
CV102	0282193	Variable capacitor [for H, HC]
CV102	0282182	Variable capacitor [except H, HC]
CV151	0282193	Variable capacitor [for H, HC]
CV151	0282182	Variable capacitor [except H, HC]
CV152	0282193	Variable capacitor [for H, HC]
CV152	0282182	Variable capacitor [except H, HC]
CT101	0282193	Variable capacitor [for H, HC]
CT101	0282182	Variable capacitor [except H, HC]
CT102	0282193	Variable capacitor [for H, HC]
CT102	0282182	Variable capacitor [except H, HC]
CT151	0282193	Variable capacitor [for H, HC]
CT152	0282193	Variable capacitor [for H, HC]
CT151	0283130	Semi variable capacitor [except H, HC]
≀	≀	≀
CT156	0283130	Semi variable capacitor [except H, HC]
RT301	0199331	Semi variable resistor FM MPX adj.
LED1	2397753	LN217RP
LED2	2397753	LN217RP
LED3	2397753	LN217RP
S001	2789721	Leaf switch (POWER SW.)
S002	2789721	Leaf switch (POWER SW.)
S003	2789711	Leaf switch (CONTINUOUS SW.)
S201	2629282	Slide switch (BAND SW.) [except H, HC]
S201	2629271	Slide switch (BAND SW.) [for H, HC]
S401	2629291	Slide switch (REC/P.B. SW.)
S402	2628341	Slide switch (INN MIC, SP SW.)
S403	2628342	Slide switch (FM ST-MONO, RIF A-B SW.) [except H, HC]
S501	2629301	Slide switch (FUNCTION SW.)
S601	2629261	Slide switch (AC BATTERY)
⚠ S602	2618471	VOL switch (VOLTAGE SELECTOR) [for W]
⚠ F601	2728073	Fuse T1.25A [except H, HC]
⚠ F601	2728062	UL Fuse 1.25A [for H, HC]
⚠	2727832	Fuse holder
J401LR	2678151	Pin Jack
J402LR	2679371	3.5 Jack
J601	2678282	DC Jack [for W]
J501	2678234	Headphone Jack
	2737441	Mic

HITACHI SALES EUROPA GmbH
Postfach 801060 Rungedamm 2, 2050 Hamburg 80,
West Germany
Tel. 040-734 11-0

HITACHI SALES (U.K.) Ltd.
Hitachi House, Station Road, Hayes, Middlesex UB3
4DR, England
Tel. 01-848-8787

HITACHI SALES SCANDINAVIA AB
Rissneleden 8, Box 7138, 172-07 Sundbyberg, Sweden
Tel. 08-98 52 80

HITACHI SALES NORWAY A/S
Oerebekk 1620, Gressvik, P.O. Box 46, N-1601,
Fredrikstad, Norway
Tel. 032-28255

SUOMEN HITACHI OY
Takojankatsu 5, 15800 Lahti 80, Finland
Tel. Lahti 44 241

HITACHI SALES A/S
Kuldyssen 13, DK-2630, Taastrup, Denmark
Tel. 02-999200

HITACHI SALES A.G.
Bahnhofstrasse, 19, 5600 Lenzburg, Switzerland
Tel. 064-513621

HITACHI SALES WARENHANDELS GMBH
A-1180/Wien, Kreuzgasse 27, Austria
Tel. 0222-439367

HITACHI SALES ITALIANA, S.P.A.
Via Cristoford Colombo 49, Trezzano sul naviglio
(Milano), Italy
Tel. 02-44 59 031

HITACHI SALES BELGIUM S.A.
56 Chaussee de Namur B-1400 Nivelles, Belgium
Tel. (003267) 227181

HITACHI SALES IBERICA, S.A.
Gran Via Carlos Tercero, 101, 1-1, Barcelona-28,
Spain
Tel. 330-8652

HITACHI MAROC (RADIO TV ELECTRO-MANAGER), S.A.
Rue du Havre, Casablanca, Morocco
Tel. 30-73-68, 30-73-57

HITACHI CANARIAS S.A.
Calle San-Francisco No. 19, Santa Cruz de Tenerife
Canary Islands
Tel. 24-64-98

HITACHI SALES (HELLAS) LTD.
110 Syngrou St., Athens, Greece
Tel. 9219082, 9233469

HITACHI SALES (MALAYSIA) SDN. BHD.
17, Jalan 20/16, Petaling Jaya, Selangor, Malaysia
Tel. 762523, 769918, 769836, 762594

HITACHI (SINGAPORE) PTE., LTD.
18, Pasir Panjang Road = 01-03 PSA Multi-Storey
Complex Singapore 0551
Tel. 2738102

HITACHI SALES (THAILAND) LTD.
2242-48, New Petchburi Road, Bangkapi, Hueykuang
Bangkok, Thailand
Tel. 314-2741

HITACHI ELECTRIC SERVICE CO., (HONG KONG) LTD.
4th Floor Leun Tai Industrial Bldg., 72-76 Kwai Cheong
Road Kwai Chung N.T., Hong Kong
Tel. 240126

HITACHI SALES AUSTRALIA PTY LTD.
153 Keys Road, Moorabbin, Victoria 3189 Australia
Tel. 555-8722

HITACHI SALES CORPORATION OF AMERICA
Eastern Regional Office
1290 Wall Street West, Lyndhurst, New Jersey 07071, U.S.A.
Tel. 201-935-8980

Mid-Western Regional Office
1400 Morse Ave., Elk Grove Village, Ill. 60007, U.S.A.
Tel. 312-593-1550

Southern Regional Office
510 Plaza Drive, College Park, Georgia 30349, U.S.A.
Tel. 404-763-0360

Western Regional Office
401 West Artesia Boulevard, Compton, California 90220 U.S.A.
Tel. 213-537-8383

HITACHI SALES CORPORATION OF HAWAII. INC.
3219 Koapaka Street. Honolulu, Hawaii 96819, U.S.A.
Tel. 808-836-3621

HITACHI (HSC) CANADA INC.
3300 Trans-Canada Highway, Pointe Claire, Quebec,
H9R 1B1, Canada
Tel. 514-697-9150

Hitachi Sales Centroamericans, S.A.
San Rafael de Excazu, (Apartado 10272), San Jose,
Costa Rica
Tel. 28-20-11, 28-00-37

Hitachi Sales Corporation de Panama, S.A.
Nuevo Repato E1 Camen, Calle Ramon Arias y Calle B
Edificio Brasil 100. (Apartado 7657) Panama 5
Panama City, Rep. of Panama
Tel. 61-3100, 61-4305

Hitachi Sales de Chile Cia., Ltda.
Av. Mexico, 0183, Casilla 9793, Correo Central
Santiago, Chile
Tel. 774165

HITACHI-FRANCE S.A.
95-101 Rue Charles Michels,
93200 SAINT-DENIS,
France
Tel. 821 6015

HITACHI LTD. TOKYO JAPAN
Head Office : THE HITACHI ATAGO BLDG.
No. 15-12, 2-Chome Nishi-Shinbashi
Minato-Ku, Tokyo 105, Japan
Tel. Tokyo (03) 502-2111

TRK-W22 TY No.452E

Printed in Japan (G, H)